RESPONSE

Applicants have reviewed the Office Action. Unless Applicants have erred, there has been no cancellation of claims 15-26. As product by process claims are legitimate claims according to the MPEP, there is no reason to cancel these claims.

Applicants also believe that the final rejection was premature and should be withdrawn.

PREMATURE FINAL REJECTION

In the response to the first Office Action, Applicants only made minor changes of form, not substance, to clarify the invention being patented. The claim changes of the independent claim were as follows:

15) A suppository enema for treating bacterial infections of the digestive tract, wherein said suppository enema is produced by the method of:

a) obtaining an effective amount of at least one specific lytic enzyme genetically coded for by a bacteriophage specific for a specific bacteria that causes said bacterial infections of said digestive tract, said specific lytic enzyme having the ability to digest a cell wall of said specific bacteria, said specific bacteria being selected from the group consisting of *Listeria, Salmonella, E. coli,* and *Campylobacter*;

b) mixing said at least one said specific lytic enzyme produced in step (a) with a carrier for delivering said at least one said specific lytic enzyme to said digestive tract.

No new matter whatsoever was introduced. Only minor amendments were made to the claims. At the interview which took place on July 27, 2002, inventors Dr. Vincent Fischetti of Rockefeller University and Dr. Lawrence Loomis of New Horizons Diagnostics Corporation

explained that in this invention a specific lytic enzyme coded for by a specific bacteriophage can digest and destroy a specific species of bacteria. In the claims, a suppository is taught containing a **specific** phage associated lytic enzymes which is **specific** for a **specific** bacteria selected from the group consisting of *Listeria, Salmonella, E. coli,* or *Campylobacter.* The old and new claims, the specification, and the discussions in the interview clearly indicate that this was the purpose and intent of the invention.

Applicants also note that the Office Action discloses a reference not previously disclosed. MPEP 706.07 clearly states:

> Before final rejection is in order a clear issue should be developed between the examiner and applicant. To bring the prosecution to as speedy conclusion as possible and at the same time to deal justly by both the applicant and the public, the invention as disclosed and claimed should be thoroughly searched in the first action and the references fully applied; and in reply to this action the applicant should amend with a view to avoiding all the grounds of rejection and objection....
>
> While the rules no longer give to an applicant the right to "amend as often as the examiner presents new references or reasons for rejection," present practice does not sanction hasty and ill-considered final rejections. The applicant who is seeking to define his or her invention in claims that will give him or her the patent protection to which he or she is justly entitled should receive the cooperation of the examiner to that end, and not be prematurely cut off in the prosecution of his or her application.

MPEP 706.07(a) states:

> Under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p).

The amended claims did not introduce any new matter. However, the Office Action did introduce a "new" piece of prior art, not listed in either the prior IDS's, nor listed or mentioned by the prior Office Action or at the interview. This further justifies rescinding the designation of the Office Action as final.

PRIOR ART

The Office Action rejects claims 27-30 and 32-38 under 35 U.S.C. 103(a) as being unpatentable over Miyauchi (4,900,730) in view of Liu et al. (5, 374,545).

Applicants respectfully disagree. U.S. Patent No. 5,374,545 (Liu) does not teach, and is easily distinguishable from, the present invention. Indeed, the cited reference specifically states that the enzymes used in Liu lyse a broad spectrum of bacteria, and that the enzyme(s) is (are) of Liu are not specific for a specific bacterial species or even a specific genus. The abstract on the very first page of the patent states that:

> A bacteriolytic enzyme complex is obtained from a bacterial culture of Bacillus pabuli strains, e.g. , isolates 350-2 (NRRL B-18446) and 391-1 (NRRL B-18447). **This bacteriolytic enzyme complex is useful as an antibacterial**

agent against both Gram-positive and Gram-negative bacteria. The enzyme complex may be produced by cultivating the B. pabuli microorganisms in an aqueous medium containing cornsteep liquor, after which the lyric enzyme complex can be recovered from the fermentation broth.

Each enzyme of U.S. Patent No. 5,374,545 can kill a broad spectrum of bacteria. They may be used to hydrolyze the cells walls of many Gram-positive and Gram-negative microorganisms, including, for example, for example E. coli, Pseudomonas aeruginosa, Serratia marcescens, Corynebacterium liquefaciens and Micrococcus luteus (col 1, lines 54-60).

More importantly, col 3, lines 5-13 state:

As may be expected, the enzyme complex from each of the different B. pabuli strains is either more or less effective one than the other against individual (i.e., pure culture) test microorganisms. **However, each of the lytic enzyme complexes was found to be effective to a significant degree against all of the test target microorganisms, and the test organism list included some known troublesome Gram-negative bacteria**, see the Table I hereinafter.

Table I clearly shows the broad spectrum of the lytic enzymes of Liu.

This contrasts with the present invention. The central idea or theme of the present invention is that a specific lytic enzyme genetically coded for by the bacteriophage is specific and lethal for one bacteria, and one bacteria only. The use of phage associated lytic enzymes in the present

invention is for the treatment and lysing of only one bacteria. It does not adversely affect the natural flora of the organ being treated, unlike the invention of 5,374,545. This was explained by Drs. Fischetti and Loomis in the interview with the U.S. PTO, and is explained in the specification and defined by the claims.

Hence, the combination of Liu with Miyauchi does not teach or suggest the present invention.

The Office Action also rejects claim 31 under 35 U.S.C. 103(a) as being unpatentable over Miyauchi in view of Liu in further view of Goldstein et al (5861295).

As this claim is dependent off of an allowable claim, the dependent claim is also allowable.

The application is now in condition for allowance. Please call the undersigned at (301) 603-9071 if you have any questions or comments. Thank you.

Respectfully submitted,

04-07-03
Date

Jonathan E. Grant
Reg. No. 34,830

2120 L Street, N.W., Suite 210
Washington, D.C. 20037
301-603-9071

MARKED COPY OF CLAIMS

15) (Twice Amended) A suppository enema for treating bacterial infections of the digestive tract, wherein said suppository enema is produced by the method of:

[(i)] a) obtaining an effective amount of at least one specific lytic enzyme genetically coded for by a [specific] bacteriophage specific for a specific bacteria that causes said bacterial infections of said digestive tract, [said at least one] said specific lytic enzyme having the ability to digest a cell wall of [a] said specific [said] bacteria, said specific bacteria being selected from the group consisting of *Listeria, Salmonella, E. coli,* and *Campylobacter*[, and combinations thereof];

[ii)] b) mixing said at least one said specific lytic enzyme produced in step (a) with a carrier for delivering said at least one said specific lytic enzyme to said digestive tract.

27. (Amended) A suppository enema for treating bacterial infections of the digestive tract, said suppository enema comprising:

[(i)] a) an effective amount of at least one specific lytic enzyme genetically coded for by a [specific] bacteriophage specific for a specific bacteria selected from the group consisting of *Listeria, Salmonella, E. coli,* and *Campylobacter*[, and combinations thereof]; wherein said at least one said specific lytic enzyme is specific for and has the ability to digest a cell wall of one of said specific bacteria, said specific lytic enzyme being genetically coded for by the same said bacteriophage capable of infecting said specific bacteria being digested; and

[ii)] b) a carrier capable for delivering said at least one said specific lytic enzyme to said digestive tract[;].